



John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director



July 11, 2016

Ms. Shari Kolak
Remedial Project Manager
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Troy Well Field Unknown Source
Remediation Response
Correspondence
Remedial Response
Miami County
555001353004

Subject: Ohio EPA Review Input Values of Site-Specific Soil Leaching Calculation for Focused Feasibility Study, East Troy Contaminated Aquifer Site, Troy, Miami County

Dear Ms. Kolak:

On May 25, 2016, the Ohio Environmental Protection Agency (Ohio EPA), Division of Environmental Response and Revitalization received through electronic mail, the Input Values of Site-Specific Soil Leaching Calculation for Focused Feasibility Study (FFS) submitted by SuITRAC, on behalf of United States Environmental Protection Agency (USEPA), for the East Troy Contaminated Aquifer (ETCA) Superfund Site located in Troy, Miami County, Ohio. Ohio EPA is providing the following comments to assist in the completion of the calculation of the site-specific soil leaching numbers.

1. The number being used for the fraction of organic carbon content (foc) of the soil is too high. The proposed input parameter is five (5) percent. Five (5) percent is much higher than typically seen in glacial till soils like those on the banks of the Great Miami River. Two (2) foc values have been presented: Four and a half (4.5) percent at SSB-21 (taken from the 2006 Shaw Report commissioned by Kimberly Clark) and five (5) percent from KMW-10, used in the current Remedial Action Objective's (RAO) Report. These two (2) foc values were calculated using an incorrect laboratory method. The method used to determine these foc values cannot distinguish organic carbon in the soil (the material that contaminants would adhere to) and the inorganic carbonate minerals in the soil.

According to the Soil Survey for Miami County, the soils under this site are of the Eldean series, described as calcareous sand and gravel formed from glacial outwash. Because of this, the soil in this area is rich in carbonate minerals, not necessarily organic carbon. The foc in the Shaw Report was determined by analyzing a soil sample from the site with the ASTM 2974 method. This

procedure uses a loss on ignition technique and as a result, the ASTM 2974 method cannot distinguish the forms of carbon present in the soil sample. The sample at KMW-10 was analyzed with USEPA SW-846 Method 9060A. This method is based on oxidizing the carbon and measuring the carbon dioxide generated. Depending on the lab method, it may or may not accurately distinguish organic and inorganic carbon.

Neither method is preferred for determining foc for leaching calculations. Ohio EPA's guidance, VA30007.14.001, Sampling and Analysis of Fraction Organic Carbon (foc) in Soils, recommends a modified Walkley-Black procedure instead. While the guidance referenced is written for Ohio EPA's Voluntary Action Program, the discussion of the available methods to quantify foc is relevant to this site. This method uses chemical oxidation by dichromate to analyze the organic carbon. Dichromate oxidation is specific to organic carbon rather than inorganic carbonate minerals. Ohio EPA guidance also recommends that a minimum of eight samples be analyzed and the ninety-five (95) percent lower confidence limit of the mean be used for further leaching calculations. Samples should be collected from un-impacted areas. It is important to note that the area near KMW-10 (Area 6) is impacted.

If this data is not available, Ohio EPA recommends additional sampling and analysis by the Walkley-Black procedure to determine the foc. Or in lieu of additional sampling, and considering the uncertainties with foc collection/analysis, Ohio EPA's default foc values (0.002-0.003) could be used.

2. The information provided noted that the infiltration rate was the most sensitive parameter in determining the soil leach-based concentration value (Cs). The default value of 0.15 m/year was taken from an Ohio EPA letter from 2007. This value was based on a 1979 reference. However, the Ground Water Pollution Potential of Miami County Ohio (Ohio Department of Natural Resources, 1995) determined that net recharge rates for the ETCA area range from seven (7) to ten (10) inches per year (0.17-0.25 m/year). Considering the sensitivity of the infiltration rate, Ohio EPA recommends that the higher recharge values be used, as they are more conservative.
3. Please see the attached table for Ohio EPA soil screening level calculations that are based on using the default foc value of 0.002 (0.2%) and an infiltration rate of eight and a half (8.5 in.) per year. USEPA proposed a soil screening level of 0.640 mg/kg for perchloroethene (PCE) and 0.418 mg/kg for trichloroethene

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(TCE). However, Ohio EPA calculated values of 0.0430 mg/kg for PCE and 0.0338 mg/kg for TCE.

If you have any questions, or would like to meet to discuss the concerns, please contact me at (937) 285-6456 or Madelyn.Adams@epa.ohio.gov.

Sincerely,

A handwritten signature in black ink that reads "Madelyn Adams". The script is cursive and fluid.

Madelyn Adams
Site Coordinator
Division of Environmental Response and Revitalization

MA/ls

Enclosure

ec: Shari Kolak, U.S. EPA
Guy Montfort, SulTRAC
Allison Reed, DDAGW, SWDO
Erin LeGalley, DERR, CO
Tim Christman, DERR, CO

OEPA (changes highlighted)

Cw	0.005
Koc PCE	94.9
Koc TCE	60.7
foc	0.002
Koc*foc PCE	0.1898
Koc*foc TCE	0.1214
Qw	0.3
Qa	0.14
H' PCE	0.724
H' TCE	0.403
pb	1.5

DAF - Hobart	18.80900509
DAF - Spinnaker	18.81758609

K	11125
i	0.003
l	0.21
L Hobart	40
d Hobart	4.48226645
L Spinnaker	7
d Spinnaker	0.784774578

L Hobart	40
L Spinnaker	7
l	0.21
K	11125
i	0.003
da	12

SSL (mg/kg)	SSL*DAF (mg/kg)
PCE Hobart	0.00229
TCE Hobart	0.00180
PCE Spinnaker	0.00229
TCE Spinnaker	0.00180

Default Leaching		
OEPA VAP	PCE	0.11-0.27 mg/kg
	TCE	0.023-0.048 mg/kg
US EPA RSL	PCE	0.0023 mg/kg
	TCE	0.0018 mg/kg

DAF

DAF Hobart	18.809
DAF Spinnaker	18.818

Mixing Zone

d Hobart	4.482
d Spinnaker	0.785